

**Case 3594*****Ecdyonurus* Eaton, 1868 and *Ephemera venosa* Fabricius, 1775 (currently *Ecdyonurus venosus*; Insecta, Ephemeroptera): proposed conservation of usage by designation of a neotype for *Ephemera venosa***

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**Abstract.** The purpose of this application, under Articles 75.6 and 81 of the Code, is to conserve the prevailing usage of the generic name *Ecdyonurus* Eaton, 1868 and the specific name *Ecdyonurus venosus* (Fabricius, 1775), by setting aside the existing name-bearing type of *Ecdyonurus venosus* and designating a neotype. The existing name-bearing type of *E. venosus*, type species of *Ecdyonurus* Eaton, 1868, is not in accord with the current use of the name *Ecdyonurus venosus* sensu auct.

**Keywords:** Nomenclature; taxonomy; Insecta, Ephemeroptera; HEPTAGENIIDAE; *Ecdyonurus*; *Ecdyonurus venosus*; mayflies.

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1. *Ephemera venosa* Fabricius, 1775 is the type species of the mayfly genus *Ecdyonurus* Eaton, 1868, family HEPTAGENIIDAE, by original designation. Since Kimmins's (1942) redescription of *Ecdyonurus venosus* subsequent authors have universally used the name *Ecdyonurus venosus* (Fabricius, 1775) in this sense in hundreds of scientific papers.

2. Fabricius (1775, p. 304) briefly described the species *Ephemera venosa* (in the imaginal stage), indicating as the type locality the habitat of *Ephemera venosa*: 'Habitat in Daniae paludosis' [= living in Danish marshlands].

3. Subsequently Gmelin (1790, p. 2629) identified this species with the description and plate of de Geer's (1771, pp. 652–656, pl. 18, figs. 13 [larva] & fig. 4 [imago]) 'Ephémère grise en dessous' (= *Ephemera fuscogrisea* Retzius, 1783; currently placed in *Kageronia* Matsumura, 1931, family HEPTAGENIIDAE, by most authors). However, considering the rediscovered type specimen of *Ephemera venosa* (see para. 15 below), the association of the larva figured in de Geer (1771) with the winged stage of *Ephemera venosa* had been based on a misidentification of the latter. In any case the original verbal description is insufficient for a clarification of the taxonomic status to define the identity of *Ephemera venosa* Fabricius, 1775 objectively.

4. Fabricius (1793, p. 70) obviously accepted Gmelin's (1790) interpretation by including the citation of de Geer (1771, pl. 18, figs. 1–4) in his otherwise unchanged diagnosis for *Ephemera venosa*.

5. Stephens (1829, p. 306) transferred *Ephemera venosa* to the genus *Baetis* Leach, 1815, referring explicitly to the drawings in de Geer (1771, pl. 18, figs. 1–4).

6. Curtis (1834a, p. 220) described *Baetis dispar* [currently *Ecdyonurus dispar* (Curtis, 1834)] and remarked: ‘The Pseudimago of this insect may be the *E. venosa* DeGeer.’ An excellent coloured plate of the male imago of *Baetis dispar* was also provided by Curtis (1834 b, pl. 484 & text [without pagination]), which however could easily be confused with other related taxa currently included in *Ecdyonurus* Eaton.

7. Burmeister (1839, p. 801) considerably changed and broadened the diagnosis for *Baetis* Leach, referring explicitly to the drawings in de Geer (1771, pl. 18, figs. 1–4) and listed *Baetis dispar* Curtis as a junior synonym of *B. venosa* (Fabricius).

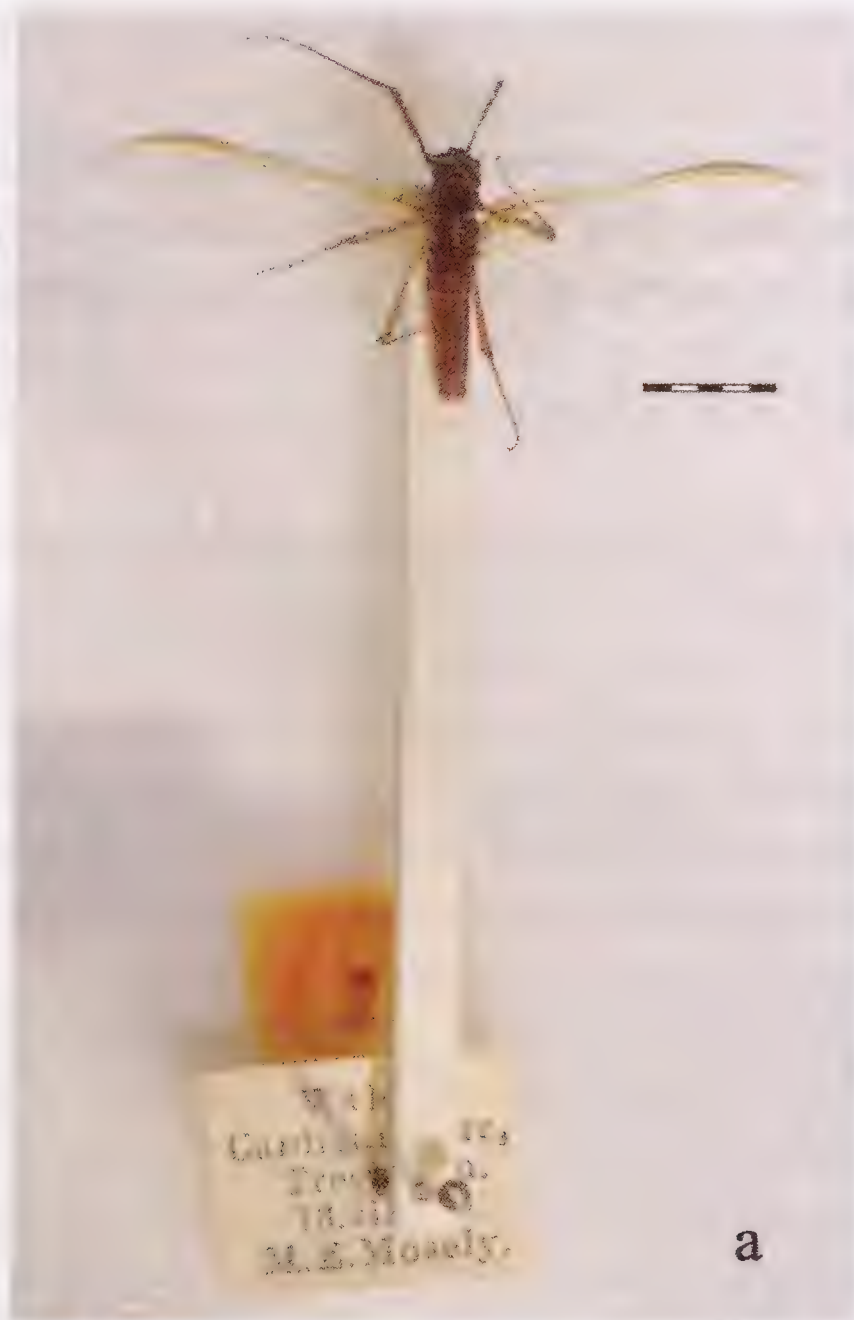
8. Eaton (1868a, p. 142, footnote) considered Burmeister’s (1839) interpretation of *Baetis* Leach ‘a misapplied name’ and established the new genus *Ecdyonurus* to accommodate some taxa [with overall appearance of imagines similar to Curtis’s plate (1834 b, pl. 484) and with larvae resembling the drawings in de Geer (1771, pl. 18, figs. 1–3)], which had been included by Burmeister (1839) in *Baetis* Leach, 1815. Eaton (1868a, p. 142) provided no additional description and based the new genus-group taxon on the oldest name in Burmeister’s synonymy of *Baetis venosa*: ‘Type, *E[phemera]. venosa*, Fabricius.’ Later Eaton (1868b, p. 90) placed *Ecdyonurus* in the synonymy of *Heptagenia* Walsh, 1863 and at the same time changed the ‘misspelt’ original spelling to *Ecdyurus*. *Ecdyurus* Eaton has been considered an unjustified emendation (Article 33.2.3 of the Code) by Ulmer (1920, p. 136) and practically all subsequent authors.

9. Eaton (1871, p. 151, pl. vi, fig. 24) provided a detailed description and drawings for the winged stages of his interpretation of *Heptagenia venosa* (Fabricius, 1775), based on material from England, France and Switzerland (including, however, *Ephemera fuscogrisea* Retzius, 1783 and *Baetis dispar* Curtis, 1834). His drawing of the male penis indeed represents the boot-shaped penis lobes and median spine-like titillators characteristic of taxa currently placed in *Ecdyonurus* Eaton, 1868.

10. Later Eaton (1881, p. 25) reinstated the genus *Ecdyonurus* Eaton, 1868 (under the spelling *Ecdyurus*).

11. In his Revisional Monograph Eaton (1883, pl. 24; 1884, pls. 61 & 62; 1885, p. 276) maintained a very broad concept for *Ecdyonurus* (under the spelling *Ecdyurus*), providing, however, detailed drawings (1884, pl. 62, figs. 1 & 4–23) of the larva of *E. fluminum* [currently *Ecdyonurus dispar* (Curtis)] which exhibits typical characters for the genus *Ecdyonurus* sensu auct. (pronotal projections, shape and setation of labrum, galeo-lacinia and hypopharynx, a.o.). *Ecdyurus venosus* sensu Eaton (1887, p. 283) clearly represents a composite taxon including at least five species-group taxa currently considered distinct: *Ecdyonurus venosus* sensu Kimmins (1942) et auct. sequ.; *Ecdyonurus torrentis* Kimmins, 1942; *Ecdyonurus dispar* (Curtis, 1834); *Ecdyonurus picteti* (Meyer-Dür, 1864) and *Kageronia fuscogrisea* (Retzius, 1783).

12. When Bengtsson (1912, p. 15) revised collections of older Scandinavian authors he was unable to locate Fabricius’s collection. From Fabricius’s description of the type locality and habitat (Fabricius, 1775) he concluded that *Ephemera venosa* might probably be identified either with *Kageronia fuscogrisea* (Retzius) or *Siphonurus* sp. It has to be observed that *Ecdyonurus venosus* sensu auct. does not occur in Denmark



**Fig. 1.** *Ecdyonurus venosus* (Fabricius, 1775); (a) proposed neotype, scale bar 5 mm; (b) proposed neotype, male genitalia on slide.

(type locality of *Ephemera venosa*) and larvae typically inhabit running waters, not marshes [contrary to Fabricius (1775 and 1793)]. In the absence of the respective type material, however, Bengtsson undertook no formal nomenclatural steps.

13. In a detailed taxonomic and nomenclatural study on the 'venosus-complex' Kimmins (1942, p. 490) revised the English taxa of *Ecdyonurus* Eaton, cleared up (most of) the complicated synonymy and provided a careful description of what he considered to represent *Ecdyonurus venosus* (Fabricius), based mainly on material from England (larvae and imagines, including reared material). Obviously he was not aware of Bengtsson's 1912 paper and did not question the identity of *Ephemera venosa* Fabricius.

14. Literally all subsequent authors followed Kimmins (1942) in his interpretation of *Ecdyonurus venosus* (Fabricius, 1775) and until now more than 40 species have been newly described or redescribed accepting his taxonomic concept for the species-group taxon *Ecdyonurus venosus* sensu auct.

15. In 2003 Jacob and Haybach reinvestigated the only extant type specimen of *Ephemera venosa* Fabricius, 1775 (family HEPTAGENIIDAE) in the Zoological Museum of Copenhagen. The pinned female subimago bears an old label inscribed 'venosa', acknowledged to represent Fabricius' handwriting (figured in Haybach & Jacob, 2006, p. 6, Fig.1). The specimen belongs without doubt to the genus *Siphonurus* Eaton, 1868 (Eaton, 1868 b, p. 89), family SIPHLONURIDAE, and may most probably be identified with *Siphonurus lacustris* Eaton, 1870 (p. 7). If the type specimen were to be allowed to stand the stability of nomenclature would be seriously threatened. Numerous taxa in two widely separated families would be affected by the necessary nomenclatural changes: Following the Principle of Priority (Article 23 of the Code) the long established genus-group name *Siphonurus* Eaton, 1868 (published September 1868 and including currently over 50 nominal species-group taxa) would become a junior subjective synonym of *Ecdyonurus* Eaton, 1868 (published April 1868). Following the Principle of Homonymy (Article 52 of the Code) the genus-group name *Ecdyonurus* sensu Kimmins (1942) et auct. sequ. would become a junior homonym of *Ecdyonurus* Eaton, 1868 (1868a) and would have to be replaced by the next oldest available synonym *Ecdyurus* Eaton, 1868 (1868b), requiring the transfer of at least 60 nominal species-group taxa currently included in *Ecdyonurus* sensu Kimmins (1942) et auct. sequ. To avoid this unwanted and excessive disruption of nomenclatural stability it seems advisable to propose the solution under Article 75.6 of the Code.

16. Among the material used by Kimmins (1942, p. 492) for his revision and redescription of *Ecdyonurus venosus*, a male imago specimen in the Natural History Museum, London (labelled Wales, Cardiganshire, Tregarron, 30.vi.1930, E.M. Moseley, genitalia on slide) obviously served as reference for the drawings (p. 496, fig. 4; male genitalia and details of penis). This specimen is in taxonomic accord with the current use of the name *Ecdyonurus venosus* (both in pattern of coloration and morphological structures) and would therefore be most suitable for designation as neotype for *Ephemera venosa* Fabricius, 1775 (Figs. 1 & 2).

17. Application of Article 70.3.2 would probably allow maintaining current usage for the genus-group name *Ecdyonurus* Eaton, but would not solve the problem of the species-group name *Ephemera venosa* Fabricius. As explained under para. 15 above (and already addressed by Belfiore & D'Antonio, 1991, p. 255) designation of a

neotype for *Ephemera venosa* Fabricius seems absolutely necessary to conserve prevailing usage of both the generic name *Ecdyonurus* and the specific name *Ecdyonurus venosus* (Fabricius, 1775). We therefore request a Commission's ruling under Articles 75.6 and 81 of the Code.

18. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous type fixations for the name *Ephemera venosa* Fabricius, 1775 and designate as neotype the male imago specimen in the Natural History Museum, London (labelled Wales, Cardiganshire, Tregarron, 30.vi.1930, E.M. Moseley);
- (2) to place on the Official List of Generic Names in Zoology the name *Ecdyonurus* Eaton, 1868 (gender: masculine), type species by original designation *Ephemera venosa* Fabricius, 1775;
- (3) to place on the Official List of Specific Names in Zoology the name *venosa* Fabricius, 1775, as published in the binomen *Ephemera venosa* and as defined by the neotype designated in (1) above.

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